

REMARKS

Claims 1-13 are pending in the application. Claims 1-7 have been withdrawn from consideration as being directed to a non-elected invention. In the Office Action of March 7, 2002, the Examiner made the following disposition:

- A.) Rejected claims 8-13 under 35 U.S.C. §112, second paragraph.
- B.) Rejected claim 12 under 35 U.S.C. §112, second paragraph.
- C.) Rejected claims 8, 10, and 12-13 under 35 U.S.C. §102(e) as being anticipated by *Gibbons et al.* '405.
- D.) Rejected claims 9, and 11-12 under 35 U.S.C. §103(a) as being unpatentable over *Gibbons et al.* '405.

Applicants respectfully traverse the rejections and address the Examiner's disposition as follows:

A.) Rejection of claims 8-13 under 35 U.S.C. §112, second paragraph:

Claim 8 has been amended, as per the Examiner's request, to overcome the rejection. Specifically, claim 8 has been amended to clarify that there is a liquid crystal layer put in the distance between the substrates. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"VERSION WITH MARKING TO SHOW CHANGES MADE"**.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

B.) Rejection of claim 12 under 35 U.S.C. §112, second paragraph:

Claim 12 has been amended, as per the Examiner's request, to overcome the rejection. Specifically, the term "dose" has been replaced with the term --exposure energy-- for clarification.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

C.) Rejection of claims 8, 10, and 12-13 under 35 U.S.C. §102(e) as being anticipated by *Gibbons et al.* '405:

Applicants respectfully disagree with the rejection.

Applicants' independent claim 8, as amended, claims a liquid crystal display device comprising a pair of transparent substrates being aligned via a predetermined distance therebetween with at least one of them having thereon a film for liquid crystal orientation. A liquid crystal layer is in the distance between the substrates. The film is a UV-reactive film, and is exposed to first polarized UV rays while the film is on the substrate aligned parallel to a reference plane, and next to second polarized UV rays after the substrate is rotated on the reference plane.

Therefore, as claimed in claim 8, the substrate is rotated on the reference plane between UV ray exposures. As described in the specification, the first polarized UV ray exposure is used to control the intended liquid crystal orientation, then the substrate is rotated on the reference plane, and then the second polarized UV ray exposure is used to control the pre-tilt angle of the liquid crystal. (Specification, page 3, lines 12-23). Applicants' device, as claimed in claim 8, has beneficial characteristics from the substrate being rotated between UV ray exposures. Specifically, a stable pre-tilt angle is present in the liquid crystal. If, for example, the substrate is not rotated on the reference plane, and instead the radiation source is moved on an elevation angle relative to the reference plane, then the pre-tilt angle in the liquid crystal would not be as stable as in Applicants' claimed device.

This is clearly unlike *Gibbons et al.*, which fails to disclose rotating a substrate on a reference plane. *Gibbons et al.* discloses exposing a liquid crystal to multiple UV ray exposures, however, unlike Applicants' claim 8, *Gibbons et al.* moves its radiation source on an elevation angle perpendicular to the plane of its substrate between exposures. Thus, if *Gibbons et al.*'s substrate is on a reference plane, then *Gibbons et al.* changes its angle of incidence of radiation on an elevation angle perpendicular to the reference plane. Nowhere does *Gibbons et al.* disclose or even suggest rotating its substrate on the reference plane between exposures.

Accordingly, unlike Applicants' claimed liquid crystal layer, *Gibbons et al.*'s liquid crystal layer does not have a stable pre-tilt angle because *Gibbons et al.*'s method does not rotate its substrate on the reference plane between UV ray exposures. In other words, the characteristics of Applicants' device are such that they would not be present in a device produced in accordance with the method set forth in *Gibbons et al.* Therefore, *Gibbons et al.* fails to disclose or even suggest Applicants' claim 8.

Claims 10 and 12-13 depend directly or indirectly from claim 8 and are therefore allowable for at least the same reasons that claim 8 is allowable.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

D.) Rejection of claims 9, and 11-12 under 35 U.S.C. §103(a) as being unpatentable over *Gibbons et al.* '405:

Applicants respectfully disagree with the rejection.

Applicants' independent claim 8 is allowable over *Gibbons et al.* as discussed above.

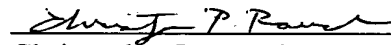
Claims 9 and 11-12 depend directly or indirectly from claim 8 and are therefore allowable for at least the same reasons that claim 9 is allowable.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that claims 8-13 are patentable. It is therefore submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend claims 8 and 12 as follows:

8. (Amended) A liquid crystal display device comprising a pair of transparent substrates being aligned via a predetermined distance therebetween with at least one of them having thereon a film for liquid crystal orientation, and a liquid crystal layer put in the distance between the substrates, wherein[;]

the film is a UV-reactive film, and is exposed to first polarized UV rays while the film is [being] on the substrate aligned parallel to a reference plane, and next to second polarized UV rays after the substrate is rotated on the reference plane.

12. (Amended) The liquid crystal display device as claimed in any one of claims 8 to 11, wherein the ratio of the [dose of] exposure energy during the first polarized UV rays exposure to that of the second polarized UV rays exposure falls between 100/1 and 1/1.